

DEPARTMENT OF HOUSING AND URBAN DEVELOPMENT Housing—Federal Housing Commissioner		STRUCTURAL ENGINEERING BULLETIN NO. 1117 Rev. 1 (Supersedes issue dated May 11, 1992)
TO: DIRECTORS, HOUSING DEVELOPMENT DIVISION		ISSUE DATE August 31, 1995
		REVIEW DATE August 31, 1998
SUBJECT: 1. Item Description Precast Concrete Insulated Foundation Wall Panels		
2. Name and Address of Manufacturer Superior Walls of America, Ltd. P. O. Box 427 Ephrata, PA 17522		

This Structural Engineering Bulletin (SEB) should be filed with other SEBs and related bulletins on materials or products as required by prescribed procedures.

The technical description, requirements and limitations expressed herein do not constitute an endorsement or approval by the Department of Housing and Urban Development (HUD) of the subject matter, and any statement or representation, however made, indicating approval or endorsement by HUD is unauthorized and false, and will be considered a violation of the United States Criminal Code, 18 U.S.C. 709.

NOTICE: THIS BULLETIN APPLIES TO DWELLING UNITS BUILT UNDER HUD HOUSING PROGRAMS. NON-HUD-INSURED UNITS MAY OR MAY NOT BE IN CONFORMITY WITH THE REQUIREMENTS OF THE HUD MINIMUM PROPERTY STANDARDS.

Any reproduction of this Bulletin must be in its entirety and any use of all or any part of this Bulletin in sales promotion or advertising is prohibited.

1. General:

This Bulletin sets forth specific requirements under the Technical Suitability of Products Program for determining the eligibility of housing to be constructed under HUD mortgage insurance or other HUD housing programs.

2. Scope:

This Bulletin applies only to the structural features of this method of construction. Final determination of eligibility is made by the appropriate HUD Field Office. Other factors considered by the Field Office will be valuation, location, architectural planning and appeal, mechanical equipment, thermal characteristics, and market acceptance. Consideration is also necessary to determine whether a specific property will qualify under the specific HUD program when constructed according to the method outlined in this Bulletin and where the structure is to be located.

In geographical areas subject to hurricanes, earthquakes, or other severe conditions affecting dwelling structures, the HUD Field Office shall require additional safeguards in proposed designs, when necessary.

3. Minimum Property Standards (MPS):

Compliance with HUD MPS will be determined by the HUD Field Office on the same basis as submissions involving conventional construction, except for the special features described in this Bulletin.

4. Inspection:

Field compliance inspections covering conventional items of construction and any special features covered in this Bulletin shall be made in accordance with prescribed procedures.

The appropriate HUD Field Office shall furnish a copy of a HUD field inspection report to Headquarters, Manufactured Housing and Construction Standards Division, Office of Manufactured Housing and Regulatory Functions, when there is:

- a. Evidence of noncompliance with any portion of the system of construction described in this Bulletin.
- b. Faulty shop fabrication, including significant surface defects.
- c. Damage to shop fabricated items or materials due to improper transportation, storage, handling, or assembly.
- d. Unsatisfactory field workmanship or performance of the product or system.
- e. Any significant degradation or deterioration of the product or evidence of lack of durability or performance.

Periodic plant inspections will be made by HUD Field Office or State Agency personnel in accordance with their prescribed procedures. Factory inspection reports shall be submitted to HUD Headquarters, upon request.

5. Certification:

The manufacturer named in this Bulletin shall furnish the builder with a written certification stating that the product has been manufactured in compliance with the HUD Minimum Property Standards (MPS), except as modified by this Bulletin. The builder shall endorse the certification with a statement that the product has been erected in compliance with HUD MPS, except as modified by this Bulletin, and that the manufacture's certification does not relieve the builder, in any way, of the responsibility under the terms of the Builder's Warranty required by the National Housing Act, or under any provisions applicable to any other housing program. This certification shall be furnished to the HUD Field Office upon completion of the property.

OUTLINE DESCRIPTION, CATEGORY II CONSTRUCTION

GENERAL:

Precast reinforced concrete insulated foundation basement wall panels for one and two family dwelling up to two (2) and 1/2 stories plus basement are furnished in this method of construction.

Wall panels may include various types of field applied interior and exterior finishes. All materials and methods of installation shall be in accordance with HUD Minimum Property Standards (MPS), Use of Materials Bulletins (UM), and Materials Releases (MR), except as may be specifically noted herein.

This Bulletin is based on a structural review of the Foundation Wall Panels of Superior Walls of America, Ltd. Dwelling design and nonstructural items (such as architectural, plumbing, heating and electrical features) are not covered by this Bulletin.

SPECIFICATIONS:

Form HUD-92005, "Description of Materials" specifying only the structurally related items (Nos. 1 to 12, 14, 26 and 27), as originally submitted for technical suitability determination, describes the materials that shall be used in construction of housing units under this system of construction. Form HUD-92005, furnished with each application for use under HUD housing programs, shall include as a minimum the same structural materials.

DRAWINGS:

The following drawings by Superior Walls shall be considered an integral part of this Bulletin:

<u>Drawing No.</u>	<u>Date</u>	<u>Description</u>
1	4/4/89	Fabrication and Construction Details
2	10/91	Supporting Data
	4/91	Builder's Procedure Booklet

The Builder shall submit construction drawings to the HUD Field Office with each application under HUD housing programs, which shall include the same or similar structural features as shown on the drawings listed above. Copies of these listed drawings shall also be furnished to the HUD Field Office by the Builder upon request.

SPECIAL CONSTRUCTION FEATURES:

Precast reinforced concrete insulated basement wall panels, nominal 4, 8, and 10 feet high and up to 20 feet wide are furnished in this method of construction. Panels consist of: (1) reinforced concrete exterior skins, (2) reinforced concrete interior studs, and (3) interior insulation. Panels shall conform to ACI 318 except as noted here-in. Minimum concrete strength shall be 5,000 psi.

1. Concrete exterior skins are 1 3/4" thick, monolithic with 10 1/2" top ledger and bottom footing reinforced with 2 #3 horizontal bars.
2. Reinforced concrete interior studs are 2 1/4" x 6 3/4" with a #4 vertical bar. Studs are spaced @ 24" on center and are mechanically anchored to the concrete skin, to ledger and bottom footing in accordance with the reference drawings. Treated wood nailers are attached to the interior face of the studs.
3. Interior insulation shall be 1 inch rigid fiberglass board by Owens Fiberglass Corporation or 1 inch extruded polystyrene by Dow Chemical, bonded, in the factory to concrete skins. Insulation shall meet the requirements of BOCA Research Report No. 90-11 dated October, 1990. Foam insulation shall be separated from all inhabited and finished spaces by 1/2 inch gypsum wallboard or a thermal barrier with a finish rating of 15 minutes. Foam insulation up to maximum of 1 inch thick may be left uncovered on basement walls in uninhabited and unfinished spaces.

Field installation of panels (gravel base, subdrainage, subgrade, bracing, caulking, panel joints etc. shall be in accordance with the manufacturer's site preparation and builders procedure booklets and HUD MPS requirements.

DESIGN AND CONSTRUCTION REQUIREMENTS:

Design Loads: Basement wall panels have a maximum allowable lateral load (earth pressure) of 60 pcf equivalent fluid pressure and a maximum allowable vertical load (building structure plus live loads) of 4200 plf. Actual lateral and vertical loads and the allowable soil bearing shall be determined for specific sites on the same basis as for site built basement walls and foundations.

Panels are suitable for Seismic Zone I. The Builder shall submit structural calculations to the local HUD Office for higher Seismic Zones.

MANUFACTURING PLANTS:

Components covered under this Bulletin will be produced in the following plants:

Advanced Concrete Systems, Inc.
R. D. #2, Box 147
Middleburg, PA 17842

Fairview Block & Supply Co.
68 Violet Avenue
Poughkeepsie, NY 12601

Nitterhouse Concrete Products
Box N
Chambersburg, PA 17201

Piscitell Stone & Supply Co., Inc.
416-418 East Brighton Avenue
Syracuse, NY 13210

Superior Building Systems
14 Onion Boulevard
Shrewsbury, PA 17361

S & S Lumber Company, Inc.
P. O. Box 500
Scotrun, PA 18355

C. W. Weaver, Inc.
824 East Main Street
Ephrata, PA 17522

The Albany and Philadelphia HUD Offices will inspect the above plants in accordance with prescribed procedures.

QUALITY CONTROL:

The appropriate HUD Field Office in whose jurisdiction the manufacturing plant is located shall review and approve plant fabrication procedures and quality control program, and shall report to Headquarters in accordance with outstanding instructions. The quality control program shall include field erection by crews trained by Superior Walls of America, Ltd.

RECORD OF PROPERTIES:

The manufacturer shall provide a list of the first ten properties in which the component or system described in this Bulletin is used. The list shall include the complete address, or description of location, and approximate date of installation or erection. Failure of the manufacturer to provide HUD with the above information may result in cancellation of this Bulletin.

NOTICE OF CHANGES:

The manufacturer shall inform HUD in advance of changes in production facilities, transportation, field erection procedures, design, or of materials used in this product. Further, the manufacturer must inform HUD of any revision to corporate structure, change of address or change in name or affiliation of the prime manufacturer. Failure of the manufacturer to notify HUD of any of the above changes may result in cancellation of this Bulletin.

EVALUATION:

This SEB shall be valid for a period of three years from the date of initial issuance or most recent renewal or revision, whichever is later. The holder of this SEB shall apply for a renewal or revision 90 days prior to the Review Date printed on this SEB. Submittals for renewal or revision shall be sent to HUD Headquarters. Appropriate User Fees shall be sent to:

U. S. Department of Housing and Urban Development
Technical Suitability of Products Fees
P. O. Box 954199
St. Louis, MO 63195-4199

The holder of this SEB may apply for revision at any time prior to the Review Date. Amendments or minor revisions may be in the form of a supplement.

If the Department determines that a proposed renewal or supplement constitutes a revision, the appropriate User Fee for a revision will need to be submitted in accordance with Code of Federal Regulations 24 CFR 200.934, "User Fee System for the Technical Suitability of Products Program", and current User Fee Schedule.

CANCELLATION:

Failure to apply for a renewal or revision shall constitute a basis for cancellation of the SEB. HUD will notify the manufacturer that the SEB may be canceled when:

1. conditions under which the document was issued have changed so as to affect production of, or to compromise the integrity of the accepted material, product, or system,
2. the manufacturer has changed its organizational form without notifying HUD, or
3. the manufacturer has not complied with responsibilities it assumed as a condition of HUD's acceptance.

However, before cancellation, HUD ~~will~~ give the manufacturer a written notice of the specific reasons for cancellation, and the opportunity to present views on why the SEB should not be canceled. No refund of fees will be made on a canceled document.

This Structural Engineering Bulletin is issued solely for the captioned firm and is not transferable to any person or successor entity.
